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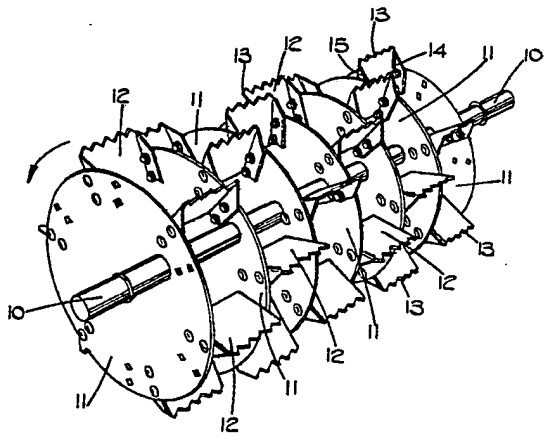
(54) Expeller reel

(57) An expeller reel for use in a manure spreader or any other agricultural machine adapted to discharge manure or other material as the machine is traversed over the ground, comprises a rotatable shaft (10) on which is mounted a plurality of axially spaced discs (11) to form between said discs a plurality of axially spaced reel sections, each pair of adjacent discs (11) being interconnected by a plurality of generally radially extending, circumferentially spaced paddles (12) which are arranged so that the inner end of each paddle (12) is spaced from said rotatable shaft (10), the paddles (12) in each section being disposed so that they are staggered, when looking in an axial direction, from the paddles (12) of the or each adjacent section.



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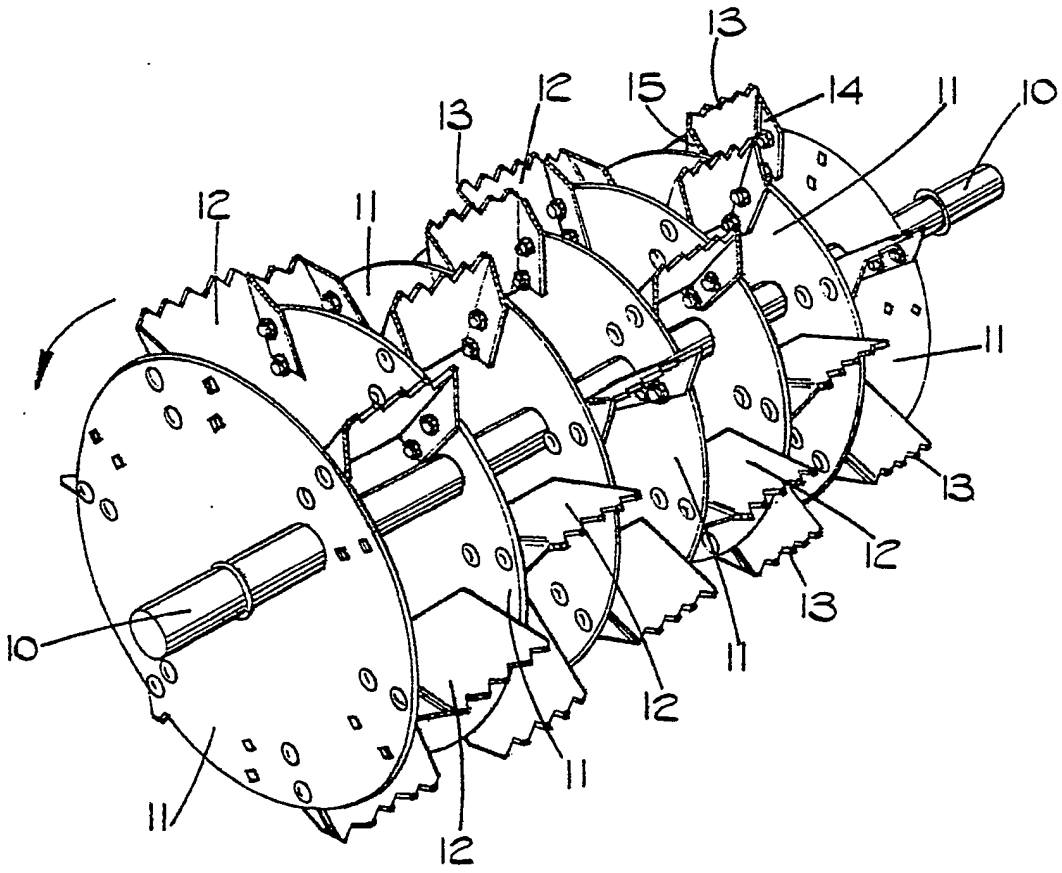
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SPECIFICATION

Expeller reel

This invention relates to a discharge device in the form of an expeller reel which is intended for use in a manure spreader or any other agricultural machine adapted to discharge manure or other material as the machine is traversed over the ground. Such a discharge device (especially when used in a manure spreader) has to be effective when driven at such a rotational speed which, on the one hand, will not be so high as to lead to excessive power consumption and, on the other hand, will not be so low as to cause the expeller reel to become clogged with manure which should be discharged.

Hitherto, various designs, involving for example swinging paddles or fixed blades or scoops have been used but many of these designs have been unsatisfactory in use for a variety of reasons and accordingly it is an object of the present invention to provide an improved form of expeller reel which acts in an efficient and reliable manner to discharge material (including sticky or heavy material) which has to be distributed without however consuming an excessive amount of power.

In accordance with the invention there is provided an expeller reel for use in a manure spreader or any other agricultural machine adapted to discharge manure or other material as the machine is traversed over the ground, said expeller reel comprising a rotatable shaft on which is mounted a plurality of axially spaced discs to form between said discs a plurality of axially spaced reel sections, each pair of adjacent discs being interconnected by a plurality of generally radially extending, circumferentially spaced paddles which are arranged so that the inner end of each paddle is spaced from said rotatable shaft, the paddles in each section being disposed so that they are staggered, when looking in an axial direction, from the paddles of the or each adjacent section.

Conveniently, each paddle is arranged in its section so that its outer end (which may be of toothed formation) projects beyond the periphery of the two discs defining the associated section.

The invention will now be more particularly described with reference to the accompanying drawing which is a perspective view of one example of an expeller reel constructed in accordance with the invention.

Referring to the drawing there is shown therein a reel which in use is intended to be mounted in a manure spreader or any other agricultural machine which is adapted to discharge manure or other material onto ground over which the machine would be traversed and for this purpose the machine would ordinarily be towed by an agricultural tractor. The reel as seen in the drawing includes a rotatable shaft 10 which in use would be drive by power actuated means such as for example the power take-off mechanism of the tractor and conveniently said shaft extends, when the reel is mounted in the machine, in a direction parallel to the longitudinal axis of the machine so that the reel is adapted to discharge material from the machine in a generally sideways direction. The machine itself would also be provided with a wheeled body which serves to contain the material which is to be distributed over the ground and there would also be provided feeding mechanism such as an auger or conveyor belt which is arranged to direct material towards an opening in or adjacent which the aforesaid reel is disposed, the auger or conveyor belt being also driven in use from power take-off mechanism of the tractor.

On the aforesaid rotatable shaft there is mounted a plurality of generally circular axially spaced discs which thus form between them a plurality of axially spaced reel sections.

In each of such sections there are provided a plurality of generally radially extending, circumferentially spaced paddles 12 so that each paddle interconnects a pair of adjacent discs. Furthermore as will be seen from the drawing the paddles in each reel section are "staggered", when looking in an axial direction, from the paddles of the or each adjacent section. Such staggering has the effect of evening the load on the reel as it is rotated in use.

As will be seen from the drawing each of said paddles 12 is arranged so that is inner end is radially spaced from the central rotatable shaft 10 so that a gap is formed between said shaft and the inner end of each paddle. The outer end of each paddle 12 is of toothed form as indicated by reference numeral 13 and furthermore this outer toothed end projects laterally outwards beyond the peripheries of the aforementioned discs 11. Conveniently each paddle is formed along its opposite sides with a pair of flanges indicated in the drawing by reference numerals 14 and 15 and these flanges are secured as by means of bolts to the adjacent discs 11 although it is of course to be understood that the paddles can be secured in any other convenient manner as for example by means of welding or rivetting.

The above described construction in which there are gaps provided between the shaft 10 and the inner end of the paddles allows a certain amount of radial "slippage" of the manure or other material being distributed to take place and this of itself maintains a generally smaller size of the material which is thrown outwardly from the machine on rotation of the reel without having to increase the speed of rotation and this of course means that the power absorbed by the reel will not be excessively large.

CLAIMS

1. An expeller reel for use in an agricultural machine adapted to discharge materials as the machine is traversed over the ground, said expeller reel comprising a rotatable shaft on which is mounted a plurality of axially spaced discs to form between said discs a plurality of axially spaced reel sections, each

pair of adjacent discs being interconnected by a plurality of generally radially extending, circumferentially spaced paddles which are arranged so that the inner end of each paddle is spaced from said rotatable shaft, the paddles in each section being disposed so that they are staggered, when looking in an axial direction, from the paddles of the or each adjacent section.

2. An expeller reel as claimed in Claim 1 for use in a manure spreader which is adapted to discharge manure therefrom.

3. An expeller reel as claimed in Claim 1 and 2, wherein each paddle is arranged in its section so that its outer end projects beyond the periphery of the two discs defining the associated section.

4. An expeller reel as claimed in any preceding claim, wherein the outer end of each paddle is of toothed formation.

5. An expeller reel as claimed in Claim 1 which is substantially as herein described with reference to the accompanying drawing.

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